-continued

16	meters/sec	0.47 cm

When an air sampler incorporating an inlet opening of the size given above is employed at or near the appropriate wind speed, isokinetic sampling is attained since the rate of air flow through the opening is approximately that of unimpeded air flow through the same area.

An important feature of the present invention is the separation between respirable and nonrespirable particles attained therein. The total length of the inlet assembly, the length of the inlet portion thereof of unchanging cross section and the impact plate (about 2.5 cm. higher than the height of the inlet opening) are important in attaining this result. It will be noted that the respirable particles rise up to strike the filter rather than the impact plate.

The embodiments of the invention in which an exclusive property of privilege is claimed are defined as follows:

1. An isokinetic air sampler comprising a filter, a holder for the filter, means for drawing air through the filter at a fixed, predetermined rate, an inlet assembly for the sampler having an inlet opening therein of less cross-sectional area than the filter, the size of the opening being such that isokinetic air sampling is obtained at a particular air speed, a closure for the inlet opening and means for simultaneously opening the closure and operating the means for drawing air through the filter when the air speed is such that isokinetic air sampling is obtained.

2. An air sampler according to claim **1** and including an impact plate of greater height than the height of the inlet opening just below the filter, the length of the inlet assembly together with the impact plate resulting in a gross separation between respirable and nonrespirable particles in the samples.

3. An air sampler according to claim **1** wherein the inlet assembly includes a slanting roof portion terminating at the filter and a flat roof portion starting at the inlet opening which holds the cross sectional area of the inlet constant for a limited distance into the sampler.

4. An air sampler according to claim **3** wherein the means for drawing air through the filter operates at a flow rate of 1.13 cu. meters per minute, the filter is 25 centimeters wide and 20 centimeters high and the height of the inlet opening for various air speeds is given in the following table.

1.5	meters/sec	5.0 cm
4	meters/sec	1.88 cm
6	meters/sec	1.26 cm
9	meters/sec	0.84 cm
13	meters/sec	0.58 cm
16	meters/sec	0.47 cm

5. A system for taking air samples isokinetically at different air speeds comprising a plurality of air samplers constructed as defined in claim **1**, said air samplers being provided with air pumps set to draw air through the filter at the same, fixed, predetermined rate and having inlet openings sized to yield isokinetic sampling at different wind speeds.

6. Method for sampling air isokinetically comprising positioning a plurality of air samplers constructed as defined in claim **1** in the atmosphere, said air samplers being constructed to yield isokinetic air sampling at different wind speeds, and turning on only the air sampler with which isokinetic air sampling is most closely approached at the existing wind speed.

* * * * *